21110 S/531/60/000/114/003/003

3,5000 (2205,2305,2405,1093)

AUTHORS: Gandin, L. S., and V. P. Boltenkov

TITLE: On the Use of an Electronic Computer for Constructing Charts

SERIAL: Glavnaya geofizicheskaya observatoriya. Trudy, no. 114, 1960. Voprosy dinamicheskoy meteorologii. 90-103

TEXT: Great advantages would accrue to the meteorological service if synoptic and prognostic charts could be constructed by means of modern high-speed electronic computers. Skilled personnel released from tedious and time-consuming manual work would then be able to make greater use of their higher skills; the chart would become more objective, eliminating one of the subjective processes in prediction; there would be a substantial decrease in the lapsed time between observations and completion of the chart; and the amount of data employed in the process could be vastly increased. However, the data used by such a machine must be for a geometrically true network of points, because it is necessary to correlate the values of different elements as well as the values of one element at different levels; erroneous data should be eliminated, and unimportant small-scale disturbances must be smoothed out. Only then can such data be used for the automated drawing of isolines on a synoptic or prognostic chart.

Card 1/4

On the Use of an Electronic Computer for Constructing Charts

21110 S/531/60/000/114/003/003

Fig. 1 is a flow diagram of the automatic operation of a prognostic center equipped with high-speed electronic computers. Machine analysis includes: interpolation of the values of the analyzed elements for points in a true grid; exclusion of errors detected by comparison of data for different stations; and correlation of the fields of meteorological elements and smoothing them out. Results of this analysis are stored in the machine's memory as values applicable to points in a true grid. The computer itself only finds the coordinates for points on the isolines. An output accessory projects these points on a special screen where they are photographed. The author discusses the only two papers which, to his knowledge, deal with the drawing of isoline charts by similar methods: that by Bedient, who employed a teletype, and that by Bring, who used a cathode-ray tube. Various shortcomings in their methods and apparatus are indicated. Their use of bilinear interpolation is seriously questioned because its use results in considerable distortions near the centers of cyclones, anticyclones, hyperbolic points and the axes of ridges and troughs. Specific cases are cited to prove this point. The method of "bicubic" interpolation is suggested as a substitute (interpolation within a square using values for the geopotential at the four corners, as usual, but supplemented with the values for 12 additional grid points surrounding the square). Bicubic interpolation cannot be used for boundary areas,

Card 2/4

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On the Use of an Electronic Computer for Constructing Charts

21110 S/531/60/000/114/003/003

but otherwise its accuracy is substantially greater than in bilinear interpolation. It is suggested that "optimum" interpolation, as proposed by Gandin (Ref. 3: Trudy GGO, no. 99, 1959) would yield still better results and the subject is recommended for further investigation. This method may be usable not only in drawing the isolines, but also in evaluating the accuracy with which they are drawn. The problem of "overloading" of the chart is discussed and methods are proposed to limit the thickness of the isolines. Fig. 4 is a detailed block diagram of the operation of any electronic computer in drawing isoline charts of any element. Two programs were worked out for use with a "Ural I" machine (for a square grid of 11 X 11 points, spaced 300 miles apart, covering an area of 9 million square kilometers). In the first case, bilinear interpolation was used for all 100 squares; in the second case, bicubic interpolation was used for 64 squares (the boundary squares must be excluded). No projecting accessory was employed. Two examples were computed with each program. The results are shown in Fig. 5 and 6; each of these charts carry three sets of lines drawn on the basis of (a) subjective analysis, (b) bilinear interpolation and (c) bicubic interpolation. They show that: the isolines do not overload the chart; the lines match well from square to square; bilinear interpolation is adequate where the field is close to linear, but that considerable errors are possible near ridges, troughs and pressure

Card 3/4

21110

On the Use of Electronic Computer for Constructing Charts

S/531/60/000/114/003/003

centers; and bicubic interpolation is for all practical purposes satisfactory. The machine time for the "Ural I", including printing of the results, was about 4 hours for bilinear and about 5 1/2 hours for bicubic interpolation; about 20%-25% of this time was for printing of the results. Use of such a machine without a projecting accessory would therefore be of little value. Addition of such an accessory to a "Ural I" would reduce the time expenditure to 4 hours. If a computer with 20,000 operations per second was used instead of the "Ural I" (100 operations per second) and three-address instruction was used, instead of one-address instruction, the time required would be reduced to 36 seconds for a 9,000,000 km area; this would therefore amount to as little as 4 1/2 minutes for an entire hemisphere if the spacing of points was doubled. There are 6 figures and 8 references: 3 Soviet and 5 English.

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Card 4/4

GANDIN, L.S.; SOLOVEYCHIK, R.E.

On the calculation of evaporation from bounded water reservoirs with allowance for horizontal intermixing. Dokl.AN SSSR 133 no.5:1070-1072 Ag '60. (MIR)-13:8)

1. Leningradskiy gornyy institut ineni G.V. Plekhanova, Predstavleno akad. A.A. Dorodnitsynym. (Evaporation) (Reservoirs)

5/169/62/000/007/114/149 D228/D307

AUTHOR:

Objective analysis of meteorologic fields Gandin, L. S.

TITLE:

PERIODICAL:

Referativnyy zhurnal, Geofizika, no. 7, 1962, 49, abstract 7B262 (Materialy Soveshchaniya Koordinats. kom mis. po chisl. metodam prognoza, L., Gidrometeoizdat,

TEXT: An account is given of tests of a methodical character on TEAT: An account 18 given of tests of a methodogic elements by means of the interpretation of fields of meteorologic elements by means of the optimal interpolation method. The optimal interpolation method the optimal interpolation method. The optimal interpolation method's principles are briefly described. The calculations were made in two stages. The first consisted of calculating the interpolative In two stages. The first consisted of calculating the interpolative weights and theoretical values of the mean quadratic errors of invergolation. This was done by means of the "Ural" computer conformably to the field of the 500-mb surface a geometrical management to the field of the 500-mb surface a geometrical management. terpolation. This was done by means of the "Graf Computer Computer to mably to the field of the 500-mb surface's geopotential. The weights and theoretical errors were calculated from data on the weights and theoretical errors were calculated from data on the autocorrelative function of the 500-mb surface's geopotential. A

Card 1/3

Objective analysis of ...

S/169/62/000/007/114/149 D228/D307

graph of the dependence of the interpolative weights on the distance between the station and the node of the regular grid is given. A very great scattering of points occurs on this graph. Hence the interpolative weights depend essentially on the relative position of the stations and not just on the distance of each of them to the grid's node, as has been suggested, for example, by Bergtorsson and Döös (Deyes) (see Chislennyye metody prognoza pogody (Numerical methods of weather forecasting), Sbornik perevodov, Gidrometeoizdat, 1960). A chart is given, too, for the distribution of the theoretical errors of interpolation; it illustrates the essential dependence of the interpolation's accuracy on the station grid's density. The calculation's second state was also programmed for the "Ural" machine. 10 geopotential fields were interpolated. The distribution of differences, averaged from these 10 cases, between the results of subjective and objective analyses is extremely like that for the theoretical errors. At the same time examination of separate cases shows that the optimally interpolated field is smoother and less liable to small-scale disturbances than the result of subjective analysis. An example is quoted to illustrate the Card 2/3

S/169/62/000/007/114/149

Objective analysis of ...

S/169/62/000/007/114/149

D228/D307

stage of divergence. It is possible to bank on decreasing them by enlisting data on the wind at the isobaric surface under consideration for the analysis of the geopotential fields. Abstracter's note: Complete translation.

S/050/61/000/011/002/002 D218/D303

AUTHOR:

Gandin, L.S.

TITLE:

All-Union meteorological conference

PERIODICAL: Meteorologiya i gidrologiya, no. 11, 1961, 66-68

TEXT: The All-Union meteorological conference took place on July 21-29, 1961, in Leningrad. It was attended by over 1400 meteorologists and workers in allied sciences. Over 450 papers were read and discussed. The conference was opened by the Chairman of the organizing committee, Deputy Director of GUGMS K. T. Logvinov, who reviewed the progress in Soviet meteorology during the last 40 years, and the possible future developments. Among the papers read at the conference were the following: A.A. Zolotukhin (Director of GUGMS): "40 Years of Soviet Hydrometeorological Service"; Academician Ye. K. Fedorov spoke about the direct control of weather and climate; I. M. Dolgin, D. L. Laykhtman, N. P. Rusin and A. D. Treshnikov (Main Geophysical Observatory) reported on Arctic

Card 1/3

S/050/61/000/011/002/002 D218/D303

All-Union meteorological conference

and Antarctic research; V. A. Bugayev reviewed the present state and possible future developments of the synoptic method of weather forecasting; M. I. Yudin: "Modern methods and problems in the numerical weather forecasting"; B. A. Mirtov and P. G. Khvostikov spoke on rocket and satellite studies of the atmosphere; M. I. Budyko reported on the climatological generalization of data in the thermal balance of the underlying surface in the atmosphere; A. M. Obukhov spoke on research into atmospheric turbulence; Kh. P. Pogosyan reviewed research into the general circulation in the atmosphere, including thermal balance, quantitative forecasting, etc.; O. A. Drozdov and Ye. S. Rubinshteyn: "A review of research into the climate of the USSR"; F. F. Davitay spoke on the agroclimatic resources; P. K. Yevseyev reported on modern computational techniques in meteorology; The conference was arranged in eight parallel sections, namely, dynamic meteorology, synoptic meteorology, physics of the surface layer, physics of the free atmosphere, actinometry and atmospheric optics, agrometeorology, instruments and research methods, and climatology. The latter was sub-divided

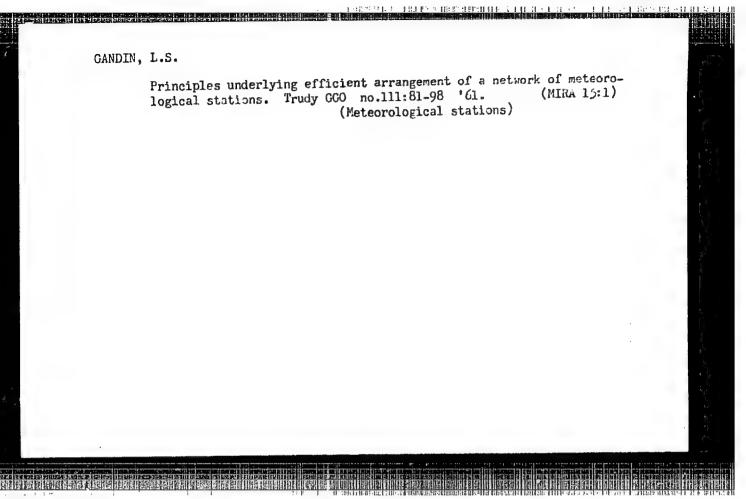
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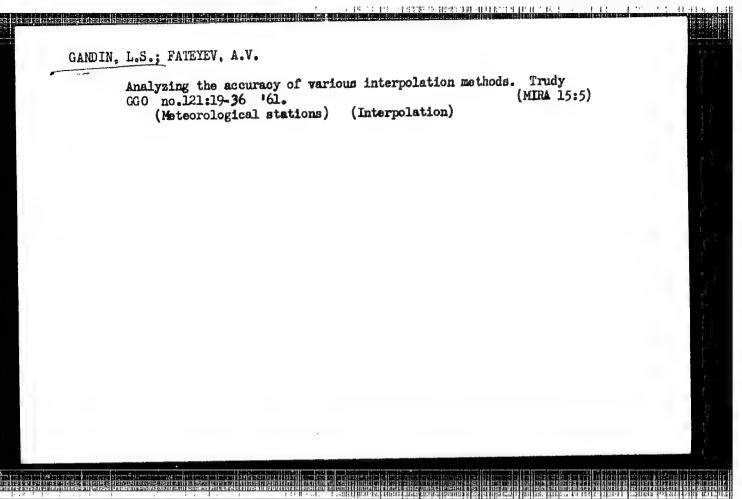
All-Union meteorological conference

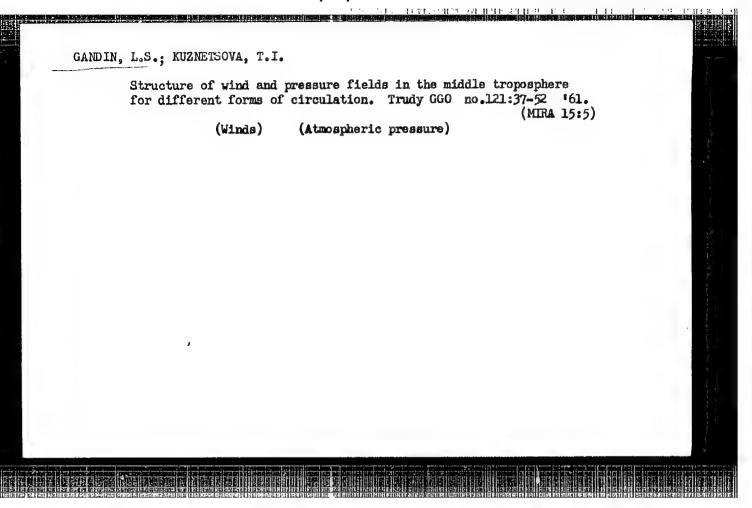
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into climatography and applied climatology. The full text of all papers will be published later. The resolutions of the conference include a recommendation for a radical improvement in weather forecasting, particularly long-range forecasting, the use of automatic meteorological apparatus, the mechanization of the analysis of meteorological data, and the introduction of quantitative methods into all branches of meteorology.

Card 3/3







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AUTHORS:

Gandin, L. S., Solovoychik, R. E.

Distribution of radioactive contaminants in the atmosphere TITLE:

SOURCE:

Leningrad. Gornyy institut. Zapiski. v. 37, no. 3. Moscow,

1961. Matematika, fizika. 30 - 38

TEXT: The steady distribution of radioactive contaminants in the twolayer system earth - atmosphere is studied with a new approach to the possibility of determining the position and source strength of subsurface radioactive sources from observations made in the near-surface layer of the atmosphere. Assumptions: The radioactive contaminants come from sources within the earth or on its surface, molecular diffusion and radioactive decay occurring in the earth. In the atmosphere the contaminants diffuse turbulently; their decay and their transportation by the wind are taken into account. The corresponding equations are (1)

 $D\left(\frac{\partial^2 q}{\partial x^2} + \frac{\partial^2 q}{\partial y^2} + \frac{\partial^2 q}{\partial z^2}\right) - \lambda q = 0 \quad (z < 0),$

and

 $u\frac{\partial q}{\partial x} = k_x \frac{\partial^2 q}{\partial x^2} + k_y \frac{\partial^2 q}{\partial y^2} + k \frac{\partial}{\partial z} \left(z^n \frac{\partial q}{\partial z} \right) - \lambda q.$ (4)

Card 1/6

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Distribution of radioactive ...

where q is the concentration of contaminant, D the coefficient of molecular diffusion in the ground, λ the decay constant; the Cartesian z-coordinate is directed vertically upward from the earth, u is the wind velocity, are the turbulent diffusion coefficients. In the introduction, attention is paid to the boundary conditions (character of the contaminant concentration at infinity; continuity of the contaminant concentration and of the contaminant flow across the earth - atmosphere interface, predetermined position and strength of the radioactive sources), and to a method of successively approximating the solution so as to avoid the need for cumbersome calculations. In the approximative solution q is substituted by $s_1 = Dq (z \le 0)$ and $s_2 = kq (z \ge 0)$ and the functions s_1 and s_2 are expanded in power series with respect to the small parameter D/k. In the main part of the paper the distribution of the radioactive contaminants in the atmosphere at a given flow of contaminants from the earth, is determined proceeding from the equation (4) for the boundary conditions

 $q|_{x-1}=0$, $q|_{y=\pm}=0$, $q|_{s=-\infty}=0$

Card 2/6

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Distribution of radioactive ...

$$-k\left(z^{n}\frac{\partial q}{\partial z}\right)\Big|_{z=0}=P(x, y), \tag{17}$$

with the aid of an integral transformation. With the aid of the designations $k_1 + k_2 + k_3 + k_4 + k_4 + k_5 + k_6 +$

 $\frac{u}{k_x} = 2a; \quad \frac{k_y}{k_x} = b; \quad \frac{k}{k_x} = c; \quad \frac{\lambda}{k_x} = l. \tag{18}$

(4) assumes the form

$$2a\frac{\partial q}{\partial x} = \frac{\partial^2 q}{\partial x^2} + b\frac{\partial^2 q}{\partial y^2} + c\frac{\partial}{\partial z}\left(z^n\frac{\partial q}{\partial z}\right) - lq. \tag{19},$$

on the condition that the known function P(x,y) is an even function the solution obtained is

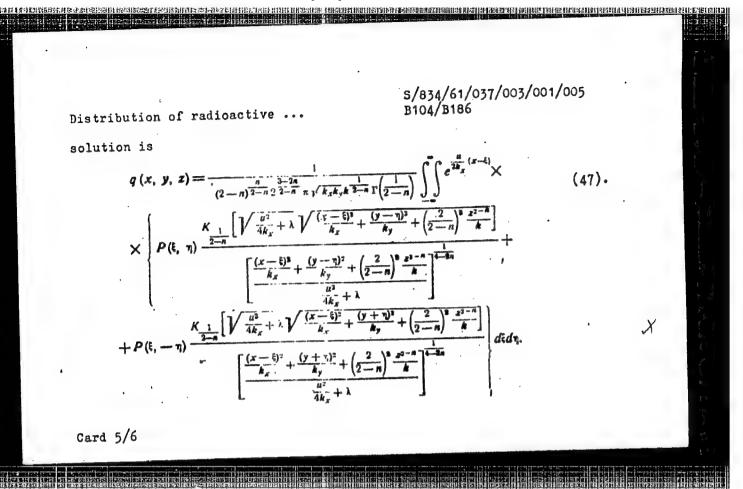
Card 3/6

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Distribution of radioactive ...

$$q(x, y, z) = \frac{1}{(2-n)^{\frac{n}{2-n}} \frac{3-2n}{2^{2}-n} \pi_{1} \sqrt{k_{x}k_{y}k^{\frac{1}{2-n}}} \Gamma\left(\frac{1}{2-n}\right)} \int_{-\infty}^{\infty} p(\xi, \eta) e^{\frac{u}{2k_{x}}(x-\xi)} \times \frac{1}{(2-n)^{\frac{n}{2-n}} \frac{3-2n}{2^{2}-n} \pi_{1} \sqrt{k_{x}k_{y}k^{\frac{1}{2-n}}} \Gamma\left(\frac{1}{2-n}\right)} \int_{-\infty}^{\infty} p(\xi, \eta) e^{\frac{u}{2k_{x}}(x-\xi)} \times \frac{1}{(2-n)^{\frac{n}{2-n}} \frac{3-2n}{k}} + \frac{1}{(2-n)^{\frac{n}{2-n}} \frac{2^{2-n}}{k}} + \frac{1}{(2-n)^{\frac{n}{2-n}} \frac{1}{k}} + \frac{1}{(2-n)^{\frac{n}{2-n}} \frac$$

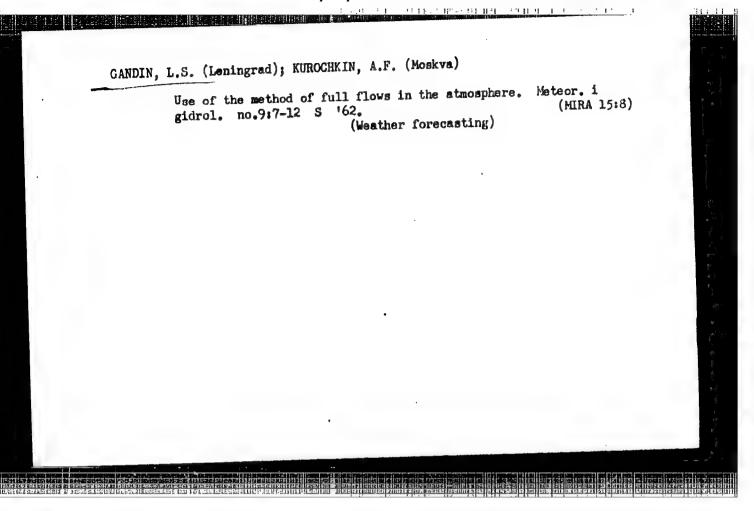
If P(x,y) is an odd function then only the sign changes in the brackets. If P(x,y) is assumed to be the sum of an even and an odd function then the Card 4/6

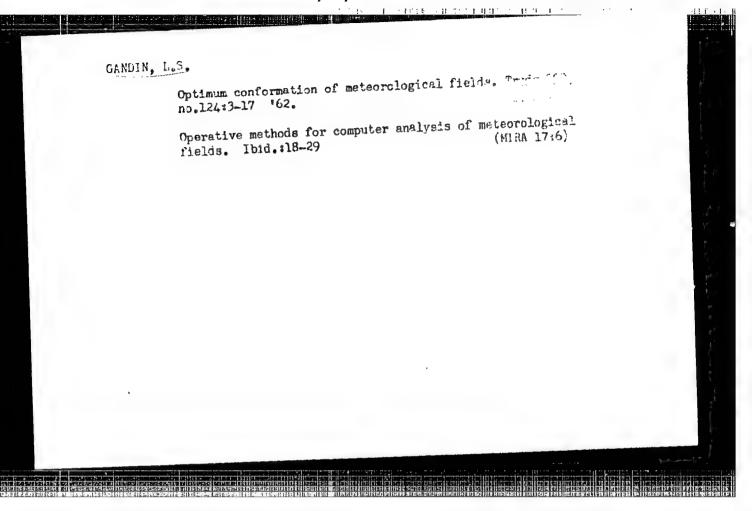


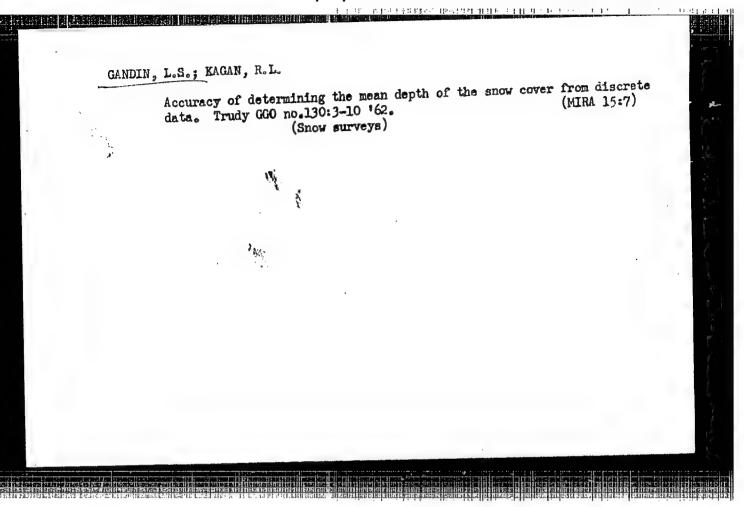
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Distribution of radioactive ... B104/B186

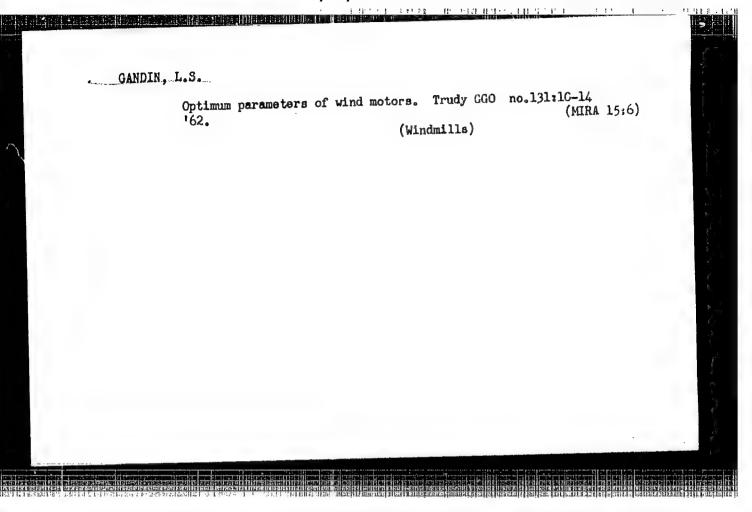
The analysis and acceptability of solution (47) for calculating the distribution of the contaminant flow on the earth's surface may be made the subject of a special study. In particular the socalled "inverse problem", as mentioned at the beginning, may be of extraordinary importance.

Card 6/6









AM4008929

BOOK EXPLOITATION

S/

Gandin, Lev Semenovich

Objective analysis of meteorological fields (ob"yektivnyy* analiz meterologicheskikh poley) Leningrad, Gidrometeoizdt, 63. 0286 p. illus., biblio. Errata slip inserted. 1,500 copies printed.

TOPIC TAGS: meterology, synoptic meteorology, weater forecasting, dynamic meteorology, diagnostic weather map, prognostic weather map, objective analysis, computer application to meteorology

PURPOSE AND COVERAGE: The monograph is devoted to applications of modern computer techniques for the construction of meteorological fields, both for automatic preparation of the initial data for numerical forecasting and for automatic construction of diagnostic and prognostic maps. Its purpose is automatic reconstitution of the fields of meteorological elements from data obtained at the points of observation, using high speed computers. Several related problems, particularly the meteorological field structure and rational distribution of a network of stations, are also discussed. This is claimed to be the first book in this field in both the Soviet and non-Soviet literature. The book is intended for a large circle of meteorologists and therefore employs simple mathematics. It is aimed

Card | 1/2

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at scientific workers in the field of synoptic and dynamic meteorology, and at graduate and undergraduate students in these fields. Several sections of the book can also be used to teach basic meteorological disciplines.

TABLE OF CONTENTS [abridged]:

Foreword - - 3

Ch. I. Introduction - -: 5

Ch. II. Statistical structure of large-scale meteorological field - - 23

Ch, III. Optimal interpolation - - 73

Ch. IV. Use of optical interpolation in objective analysis - - 116

Ch. V. Reconciliation of fields - - 168
Ch. VI. Problems of automatization of the work of prognastic centers - - 202

Ch. VII. Problems of retionalization of a network of aerological stations - - 237 Literature - - 291

SUB CODE: MM, CC, SD

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GANDIN, L.S.

Static control of serological telegrams. Meteor f

Static control of aerological telegrams. Meteor.i.gidrol. no.9: 31-33 S '63. (MIRA 16:10)

1. Glavnaya geofizicheskaya observatoriya.

ACCESSION NR: AT4016874

8/2531/63/000/143/0130/0137

AUTHOR: Bagrova, Ye. I., Gandin, L. S.

Method for computation of wind norms in the middle troposphere TITLE:

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy*, no. 143, 1963, Voprosy* chislennogo prognoza i struktura meteorologicheskikh poley (Problems in numerical forecasting and structure of meteorological fields), 130-137.

TOPIC TAGS: meteorology, wind, troposphere, weather forecasting, isobaric surface, atmospheric geopotential, geostrophic wind.

ABSTRACT: A method is proposed for computing wind norms on the basis of the norms for the geopotential of isobaric surfaces. "Norms" are the mean long-term mean monthly values. Objective analysis of wind fields requires a knowledge of wind distribution over the area of interest, which in turn requires knowledge of the mean wind vector, or the mean values of its two components. Such data are unobtainable from handbooks. An indirect computation method therefore is presented for determination of wind field norms, based on the assumption that the norms of the real wind coincide with the norms of the geostrophic wind; there is no basis to assume their noncoincidence. Norms are determined from a Card 1/2

ACCESSION NR: AT4016874

limited sample. Norms of the geostrophic wind are computed directly from a chart of norms for the isobaric surface of interest. This is done very precisely by a method described. The 500-mb surface was used; isobars were smoothed subjectively where the pattern was complex. Transformations required for conversion of computed data to the zonal and meridional components of the geostrophic wind are discussed; suitable formulas are presented, but tables can be used in practice. Charts of the norms of the zonal and meridional wind components at the 500-mb surface were prepared for each month (24 charts). Accuracy of the method was checked against the Upper Wind Statistics Charts of the Northern Hemisphere. Orig. art. has: 3 formulas, 3 figures and 3 tables.

ASSOCIATION: Glavnaya geofizicheakaya observatoriya (Main Geophysical Observatory)

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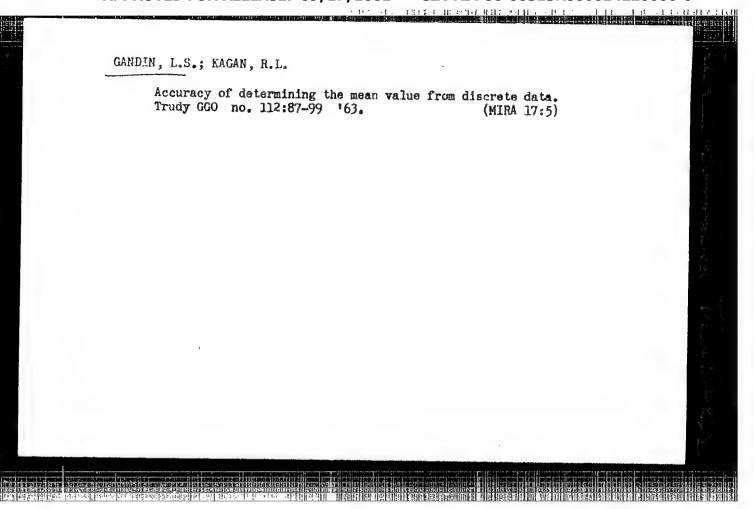
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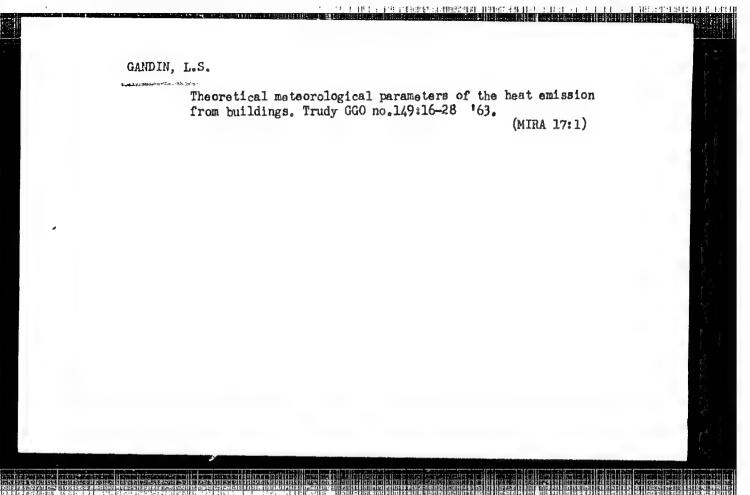
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Card 2/2:



GANDIN, L.S.; MELESHKO, V.P.; MESHCHFRSKAYA, A.V.

Use of universal digital computers in studying the statistical structure of meteorological fields. Trudy GGO no.1/3:113-129 '63. (MIRA 17:2)



GANDIN, L.S.; SOLOVEYCHIK, R.E. (Leningrad):

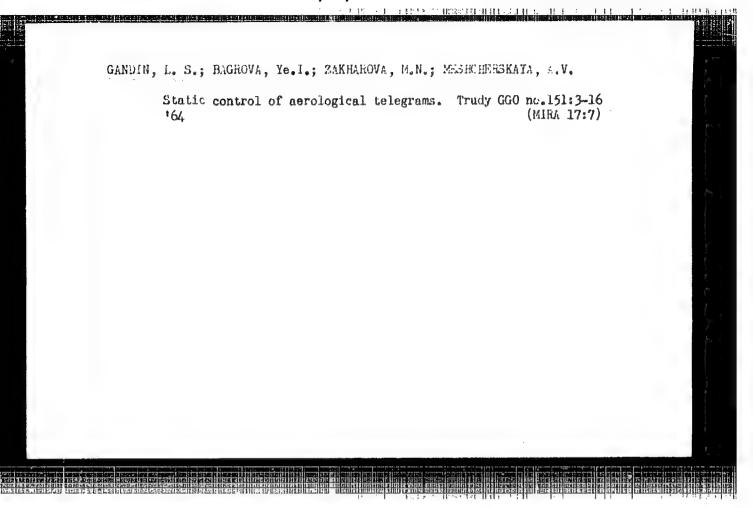
"On the propagation of radioactive emanation in the atmospheric boundary layer."

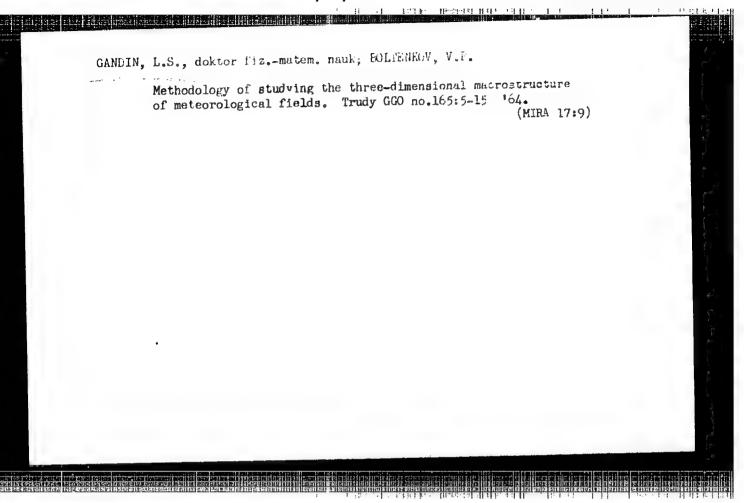
report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

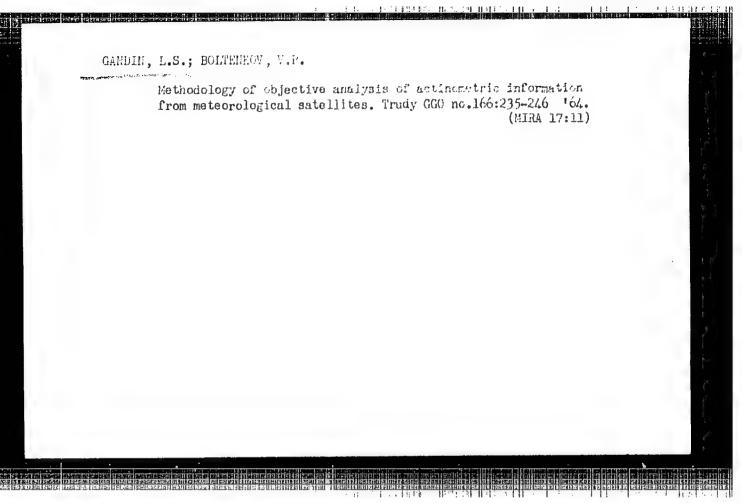
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NEDOSHIVINA; T.C.; red.

[Transactions of the Symposium on Numerical Methods of Weather Forecasting, Moscow, 1963] Trudy Simpoziuma pochislennym metodam prognoza pogody. Leningrad, Gidrometolzdat, 1964. 234 p. (MIRA 17:12)

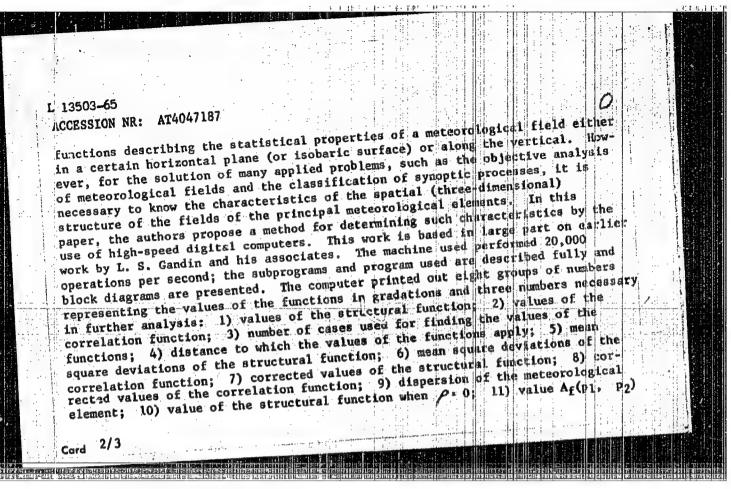
1. Simpozium pochislennym metodam prognoza pogody, Moscow, 1963.







ASD(d)/ESD(dp) EHT(1)/FCC L 13503-65 200/165/0005/0015 ACCESSION NR: AT4047187 M. Physical Isl AUTHOR: Gandin, L. S. (Doctor of physico-mathematical schences) soltenkov TITLE: A method for investigating the three-dimensional macrostructure of meteorological fields SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy*, no. 165, 1964. Primeneniye statisticheskikh metodov v meteorologii (Use of statistical methods in meteorology), 5-15 TOPIC TAGS: meteorological field, meteorological structural function, moteorological correlation function. TRANSLATION: During recent years, there have been numerous investigations of the macroscale statistical structure of meteorological fields. It has been possible to increase the information on the statistical properties of atmospheric characteristics appreciably, and solve a number of applied problems. However, in almost every case, the authors studied only the atructural and autocorrelation functions describing the internal properties of each meteorological element, and not the relationship between different elements. For the most part, these authors studied the "horizontal" or "vertical" statistical structure, that is, Card 1/3



L 13503~65 ACCESSION NR: AT4047187 for a particular pair of levels. The program described was used to compute more than 100 correlation functions of air temperature at a number of levels in various combinations of levels and for different seasons. The use of the method is illustrated for the case of air temperature structural and correlation functions for summer at the 500-mb surface. Computation of the structural and correlation functions on a computer using 3,600 measurements of the meteorological element (60 siutations with data for 60 stations each) requires 15 minutes machine time, while manual computations require several months. Orig. art. has: 3 figures and 1 table. ASSOCIATION: Glavnaya geofizicheskaya observatoriya, Leningrad (Kain Geophysical Observatory) SUB CODE: ES DP ENCL: SUBMITTED: 00 OTHER: NO REF SOV: 002

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000614220006-0"

Card 3/3

5/2531/64/000/165/0047/0059 EWT(1)/FCC L 13501-65 AT4647191 ACCESSION NR: AUTHOR: Gandin, L. S. (Doctor of physico-mathematical sciences) TITLE: Optimal interpolation of vector fields SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya, Trudye, no. 165, 1964. Primeneniye statisticheskikh metodov v meteorologii (Use of statistical methods In meteorology), 47-59 TOPIC TAGS: geostrophic wind, optimal interpolation, wind, vector field interpolation ABSTRACT: If an objective analysis of the wind field is made, guided by the requirement that there be a minimum mean square error in analysis, it is necessary to carry out an optimal interpolation of the wind at the intersections of a regular grid using data for the stations carrying out aerological sounding. If each wind component is considered as a scalar meteorological element, homogeneous and sometropic relative to a correlation function, wind interpolation can be accomplished using the ordinary formulas of optimal interpolation of scalar fields (L. S. Gandin, Ob optimal noy interpolyatsii i ekstrapolyatsii meteorologicheskikh poley, Tr. GGO, No. 114, 1960). However, it is known that it does not necessarily follow Cord 1/2 statistical homogeneity and isotropy of some vector value that there is

S/0000/64/000/00/01/3/0181 GS/GW EWT(1)/FCC 44325-65 ACCESSION NR: AT5009058 AUTHOR: Gandin, L. S. (Doctor of physico-mathematical sciences) TITLE: Problems in objective analysis of the fields of meteorological elements SOURCE: Simpozium po chislennym metodam prognoza pogody. Boscow, 1963. Leningrad, Gidrometeoizdat, 1964, 173-188 TOPIC TAGS: meteorology, objective analysis, numerical forecasting, radiosonde, computer control ABSTRACT: The purpose of this report is to review the present status and future prospects for various aspects of objective analysis. The most important steps in objective analysis are interpolation, coordination of meteorological fields, inspection of initial data for finding and eliminating gross errors and processing the data. The three methods of interpolating polynomial approximation, successive approximation and optimal interpolation are described. The method of polynomial approximation developed by Cressman (1959) and widely used in the U.S. and in Japan is not used in the Soviet Union. Since May 1961 operational numerical forecasts of geopotential fields have been made by the Computer Meteorological Center Card 1/3

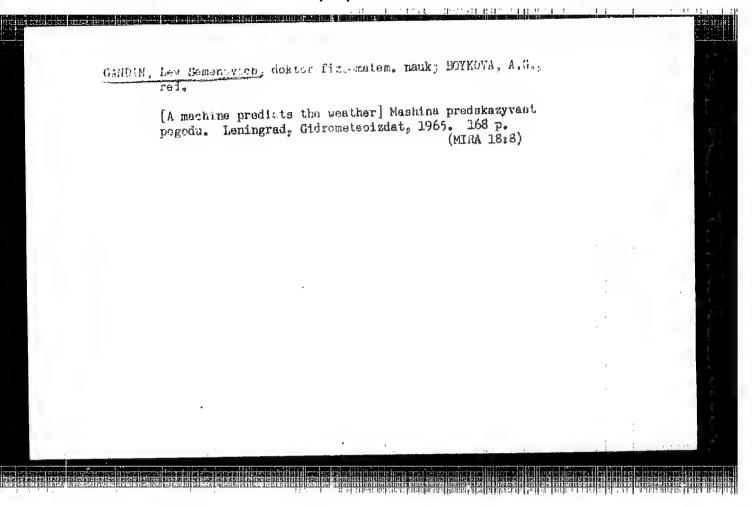
II hh325-65 ACCESSION NR: AT5008058 in Moscow using objective analysis data. The several different methods of object ive analysis including "reverse" interpolation are discussed and compared. l'abulated values of mean standard deviations between results of interpolation by various methods and observed values show that with a dense station tetwork all reasonable methods of interpolation give about the same accuracy. With a sparce network optimal interpolation is the most accurate, but the accuracy is still clearly insufficient. The author's formula for correlating liagnostic and prognostic values is given and discussed. The correlation can be verified by conparing the values for an artificially "thinned out" network and the numerical formcast with an analysis made for the entire dense network. The more complicated process of correlating the wind and geopotential in quasiged trophic models wast be done on the basis of the divergence equation in the solen dal approximation. A method of interpolation of the wind field is presented and equalions are derived for the evaluating interpolation errors. Graphs of the isolines for correlation functions of the geostrophic wind are given. Methods are described for eliginating errors in aerological soundings due to faulty instrumentation, errors in the initial processing of the results and distortions in transmission of the data. block diagram is given for a computer program used for processing telemetered acrological information. Tabulated results of checking 453 talemetered tapes show that Card 2/3

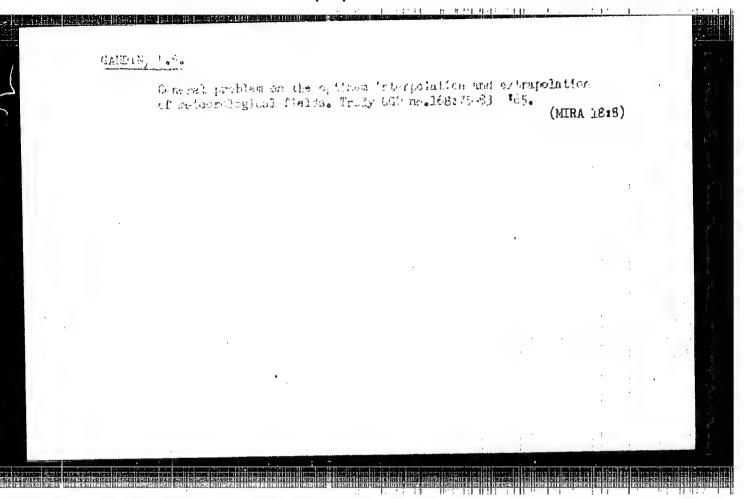
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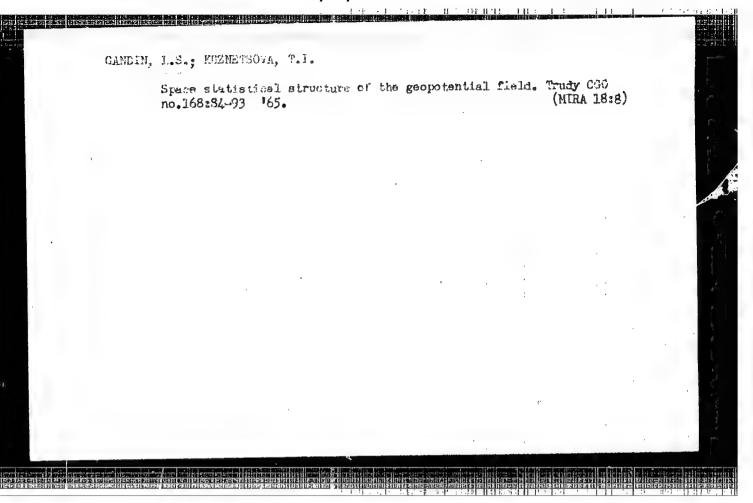
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A.N., kand. fiz.-mat. nauk; DAVYDOVA, O.A.; KUPYANSKAYA;
A.P.; PETRICHENKO, I.A.; MORSKOT, G.I.; TOMASHEVICH, L.V.;
SAMOYLOV, A.I.; ORLOVA, Ye.I.; DZHORDZHIO, V.A.; PETRENKO,
N.V.; DUBOVYY, A.S.; ROMOV, A.I.; PETROSYANTS, M.A.; GLAZOVAYA,
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GANDIN, L.S.; BURTSEV, A.I.; MERTSALOV, A.N.; BAGROVYY, N.A.;
BELOV, P.N.; ZVENEV, A.S., retsenzent; SIDENKO, G.V., ALD.;
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prof., red.; ROGOVSKAYA, Ye.G., red.

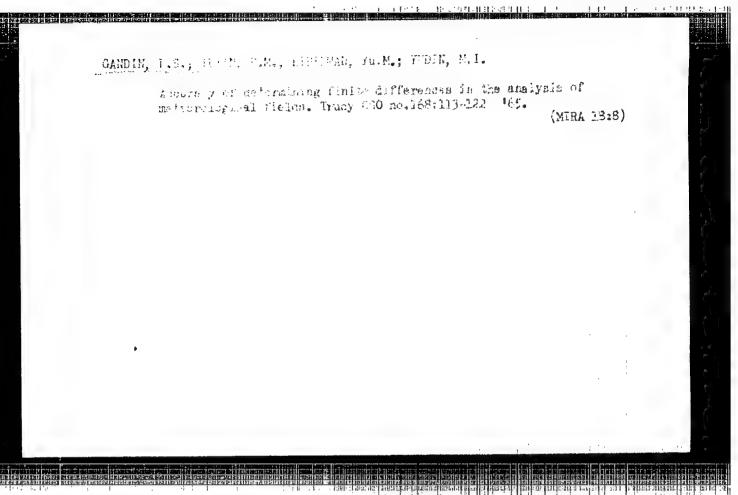
[Manual on short-range weather forecasts] Rukovodstvo po kratkosrochnym prognozam pogody. Leningrad, Gidrometeoizdat. Pt.1. Izd.2., perer. i dop. 1964. 519 p. (MIRA 18:1)

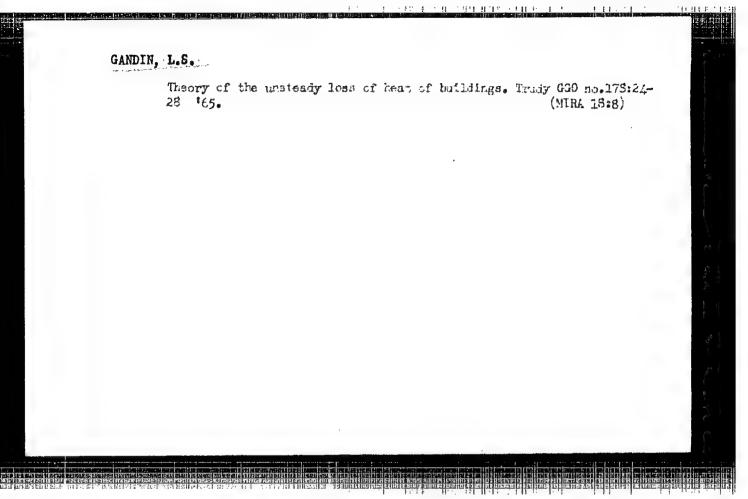
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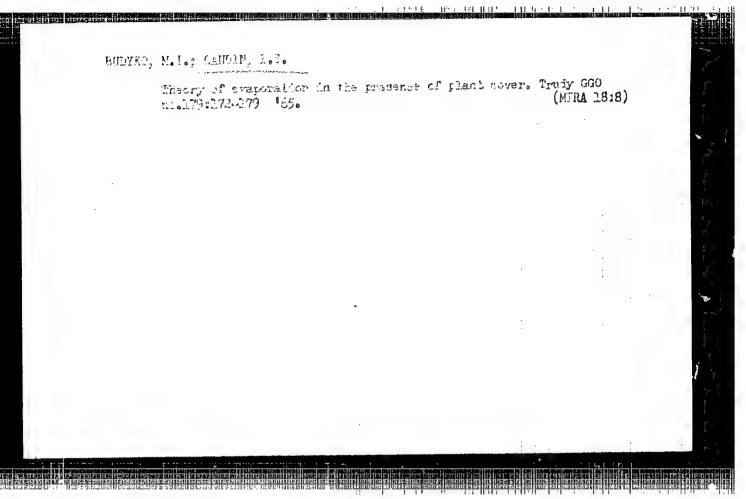












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ACCESSION NR: AP5024010

UR/0020/65/164/002/0454/0457 3

AUTHOR: Budyko, M. I. (Corresponding member AN SSSR); Gandin, L. S.

TITLE: On the theory of photosynthesis in a layer of plant cover

SOURCE: AN SSSR. Doklady, v. 164, no. 2, 1965, 454-457

TOPIC TAGS: calculus, solar photosynthesis, plant respiration, computer application, carbon dioxide

ABSTRACT: In continuation of earlier work on calculation of total photosynthesis by considering the regular processes of carbon dioxide diffusion and irradiation distribution in a plant layer, the author presents some generalizations of the earlier theory and the results of calculations based on this theory. The initial formula is

 $A_z = \rho k \, dc \, / \, dz, \tag{1}$

where A_z is the vertical current of CO_2 gas in the layer at the z level, ρ the air density, k is the coefficient of turbulent exchange, c the CO_2 concentration in the Cord 1/3

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ACCESSION NR: AP5024010

leaf interspace. Further development introduces other factors, such as Q- the current of photosynthetically active radiation, D'- the integral diffusion coefficient of ${\rm CO}_2$ from leaf interspace to the adsorbing elements of the leaf, s- the leaf surface unit. The developed formula

$$A = A_H + A_0 + \int_0^H \varepsilon s \, dz, \tag{11}$$

where A is the total assimilation and $A_{\rm H}$ is the vertical CO₂ current at the H level, is applied to the cases of: 1) well ventilated cover in the absence of CO₂ from the soil; and, 2) well illuminated cover in which conditions of light saturation are met at all levels. A computer was used for solving these equations. Curves are shown for total assimilation as a function of photosynthetically active radiation (PAR), D' and k. From these it appears that for low PAR values, total assimilation depends almost exclusively on PAR. For high PAR values, this is determined by D' and s. Low D' is an important factor for assimilation while high D' reduces the importance of this factor. For curves referring to the Cord 2/3

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ACCESSION NR: AP5024010

effect of k, the leaf is considered well ventilated if K₁ = > 5 cm. sec⁻¹.

Orig. art. has: 17 formulas and 3 figures

ASSOCIATION: Glavnaya geofizicheskaya observatoriya im. A. I. Voyeykova.
(Main Geophysical Observatory)

SUBMITTED: 12Mar65 ENCL: 00 SUB CODE: LS

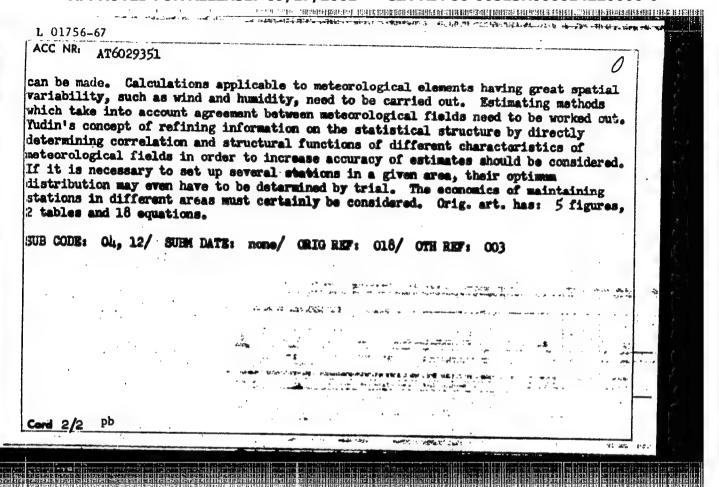
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EUDYKO, M.I.; GANDIN, L.S.

Effect of climatic factors on the plant cover. Izv. AN SSSR. Ser. geog. no. 1:3-10 Ja-F '66 (MIRA 19:2)

1. Glavnaya geofizicheskaya observatoriya imeni A.I. Voyeykova.

L 01756-67 EWT(1) GW AT6029351 SOURCE CODE: UR/2531/66/000/191/0005/0017 AUTHOR: Gendin, L. S. ORG: none TITLE: Large scale atmospheric processes and the problem of station networks SOURCE: Leningrad. Glavnaya geofisicheskaya observatoriya. Trudy, no. 191, 1966. Primeneniye statisticheskikh metodov v meteorologii (The application of statistical methods in meteorology), 5-17 TOPIC TAGS: practical meteorology, weather station, statistic analysis, interpolation, ABSTRACT: The evolution and the status of investigations on quantitative determination of station network spacing appropriate for recording large scale atmospheric processes is discussed. Methods of several authors are analysed. Calculations have been carried out to determine the maximum permissible distance between stations to obtain aerological data relating to the altitude of isobaric surfaces. The methods of optimum interpolation and objective analysis of meteorological fields have been applied to determine what degree of refinement a new station would add to available information. There is some basis for the quantitative approach to solving the problem of appropriate station spacing, but need for further study is indicated before final recommendations Card 1/2



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L 07903-67 EM(I) SOURCE CODE: UR/2531/66/000/191/0018/0021 ACC NR AT6029352

AUTHOR: Gandin, L. S.; Kagan, R. L.

ORG: none

TITLE: Approximation for characteristics of a statistical structure

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 191, 1966. Primeneniye statisticheskikh metodov v meteorologii (The application of statistical methods in meteorology), 18-21

TOPIC TAGS: meteorology, statistic analysis, interpolation, correlation function

ABSTRACT: Statistical characteristics such as correlation and structural functions are important in the theory of random functions as applied to meteorological problems. The parameters of these characteristics are determined by the statistical treatment of experimental material. The authors demonstrate, for a one-dimensional case, how an interpolation for a meteorological element can be made by using measurements of this element at equidistant points. The optimal interpolation suggested by Gandin is used, based on the method of least squares. It is also shown that the data on statistical structure can be used for finding the formulas of optimal integration; however, the construction of the correlation functions requires more detailed information than needed for the solution of a concrete problem. Orig. art. has: 13 equations.

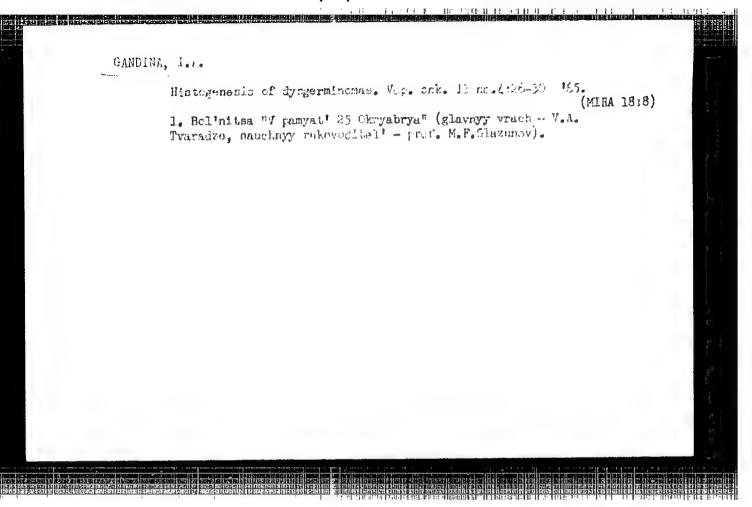
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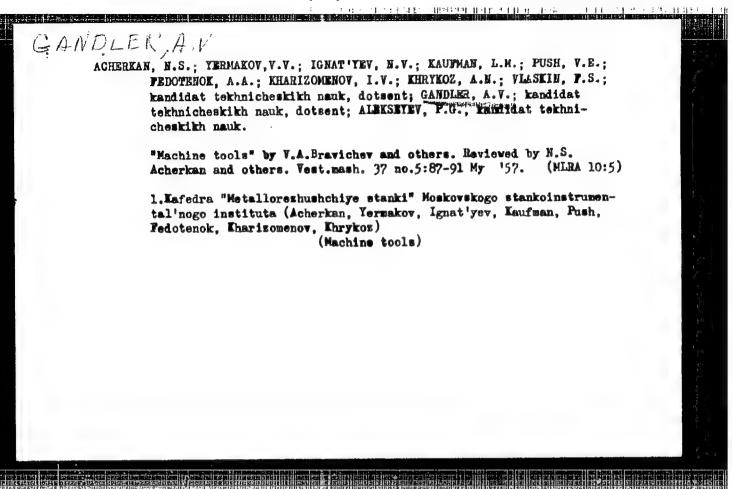
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- !	TITLE: Alloyed cast iron. Class C 22c; 40b, 37 sup oo B 21b; 7a,19, No. 175236	
	SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 19, 1965, 72	i.
	TOPIC.TAGS: cast iron, hardness, wear resistance, chemical composition, iron alloy	
	ABSTRACT: An alloy cast iron is proposed with high wear resistance and hardness which has the following chemical composition (in %): 3.8 C (max), 0.3-0.7 Si, 2.0-3.5 Mn, 0.05-0.3 Cr, 1.2-2.2 Ni, 0.3 Ti (max) and 0.4 P (max). [JPP3]	
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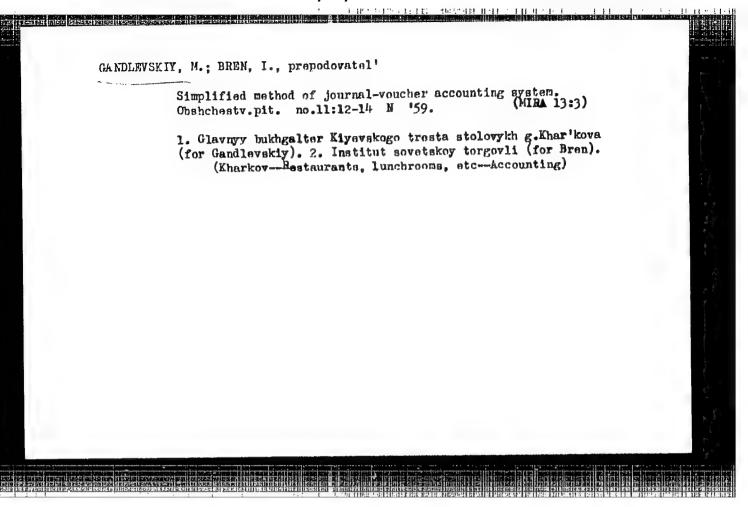
GANDINA, I.A. (Leningrad)

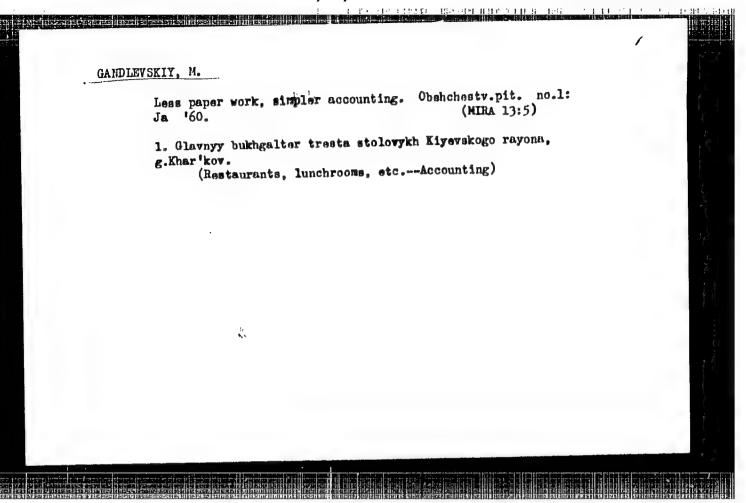
Structure and variations of Brenner tumor. Arkh. pat. 25 no.7:
13-17 *63 (MIRA 16:12)

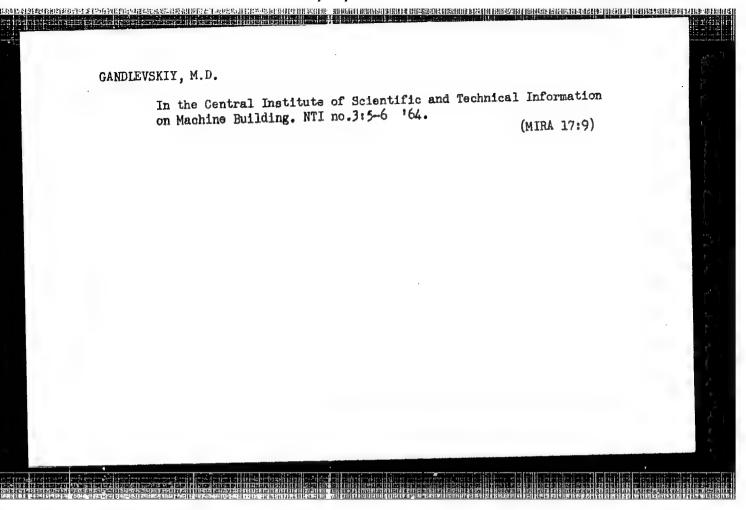
1. Iz patologoanatomicheskogo otdeleniya bol*nitsy "V pamyat"
25-go (ktyabrya* (glavnyy vrach I.P. Yushmanov) i kafedry Fatologicheskoy anatomii Gosudarstvennogo instituta dlya usovershenstvovaniya vrachey imeni S.M. Kirova (zav. - prof. P.V. Sipovskiy), Leningrad.











532

PHASE I BOOK EXPLOITATION

Gandlevskiy, Mark Moiseyevich

Silovoy sledyashchiy privod (The Power Servomechanism) Moscow, Oborongiz, 1957. 197 p. 10,600 copies printed.

Reviewer: Gordeyev, D. I.; Candidate of Technical Sciences, Docent; Ed.: Grigorash, K. I.; Ed. of Publishing House: Petrova, I. A.; Tech. Ed.: Zudakin, I. M.; Managing Ed.: Sokolov, A. I., Engineer.

PURPOSE: This monograph is addressed to students enrolled in technical schools and may prove useful to a wide circle of engineers and technicians concerned with problems of automatic control and specializing in related fields.

COVERAGE: Basic servomechanism theory, principles of operation, and servomechanism components of the most advanced servomechanisms are discussed. Essential physical considerations in the control process, as well as the more complicated problems of determining servomechanism stability, are also examined. The purpose of the present work is to examine in the

Card 1/7

The Power Servomechanism

582

simplest way possible a number of problems connected with the basic components and operating principles of servomechanisms. In addition to basic theory, the problems of frequency analysis and determination of system stability are discussed. The author states that an attempt is made throughout to keep the discussion at the level of the technical school student without sacrificing accuracy in presenting the basic concepts of current automatic control science. Where necessary, appropriate explanations of the mathematics involved are given. The following types of selsyns are presented in tabular form with specifications: contact selsyns of the SS-404, -405, -501, and DI-501, -511 types; mag-slips of the BD-404A and -501A types, and BS-404A, -405, and -501A types (p. 29). Design data are given of the following d-c motor types: the MI-11, 12, 21, 22, 31, 32, 41, 42, 51, 52. Design data are given on the ASM-50, 100, 200 and 400 type two phase, asynchronous motors. The TD-102 and TG-2M type tachogenerators with independent excitation are mentioned. The author expresses his thanks to Lecturer Gordeyev, D. I., Candidate of Technical Sciences and to the Commission on Curriculum of the Izhevak Industrial Technical School for their valuable suggestions in the review of the manuscript. (p. 4) The Soviet scientists A. G. Iosif'yan, and D. V. Svecharnik are mentioned in connection with the mag-slip, the design of which they proposed in 1938. Mikhaylov is mentioned in connection with his criterion for Card 2/7

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TABLE OF			
CONTENTS:		3	
Preface		5	
Introduction	on	7	
Ch. I.	Design and Operating Principle of Servomechanism	15	
Ch. II.	Error Meters	15	
1.	Types of error meters	19	
		31	
3.	Transformer operating contraction	34	
4.	Operating principle of the mag-slip Selsyn-transformer operating as an error meter in	36	
5•	the servemechanism circuit	37	
6.	Increasing accuracy of servomechanism operation	37 40	
_	a	45	
8.	False zero in two-channel system		
Card 3/7			

	582		
The Power	Servomechanism		
M TTT.	Servomechanism Actuating Organs	48	
Q.	General information	48	
10.	D-c motor with independent excitation	49	
77	mun_nhage induction a=c motor	54	
10	Undroulie drive as servenechanism actuating organ	59	
13.	Reduction of system parameters to the load axis or to		
) •	the motor shaft and selection of actuating organ		
	capacity	64	
at. ****	Stabilizing Units and Methods of Sending Stabilizing		
Ch. IV.	Signals	68	
7.1.	General information	6 8	
14.	Tachometer generators	6 8	
15.	Stabilization proportional to speed of revolution	72	
17	Stabilization proportional to speed of error change	73	
18	Differentiating capacitor-resistor circuit	73 75 79 80	
10.	Differentiating transformer	7 9	
20.	Integral error compensation	80	
Card 4/7			
•			

The Power Servomechanism	582	
		83
Ch. V. Servomechanism Ampl	ifier Units	83 83
OO A_c vacuum tube an	DITITORS and bemongs and	84
rectifier-amplix	JOE CILCUIUS	96
_ v annum desha am	m] ifiers	97
oh Using semiconducto	or components in subtrings	99
os. Thyratron amplific	ers	104
of Magnetic amplifier	rs	112
on Dynamoelectric am	brirera	119
28. Hydraulic amplific	ers	•
	Sandam Blacour	122
Ch. VI. Elementary Servon	echanian insory	122
an demonstration of the contract of the contra		122
30. Classification of	#down control	126
31. Drive with propor	Cloud Control	136
32. Drive with deriva	Cive control	139
33. Rate system of a	361.4000cmmm	-1-
Ch.VII. Examples of Servo	mechanism Systems	141
Ch.VII. Examples of Server 34. Requirements of s	ervenechenisms	141
34. Requirements of		
Card 5/7		

The Power Servomechanisms 582		
	142	
35. Low-power servomechanism systems	147	
76 Commonhanism With Smill Cyllo	149	
37. Electrohydraulic servomechanisms	-1/	
	155	
Ch. VIII. Determination of Servomechanism Stability	155	
-0 #	156	
39. Equations of individual servomechanism links		
39. Equations of individual services differential equations 40. Examples of how servomechanism differential equations	165	
and and ten	169	
the Standard dynamic links of a servemechanism		
42. Frequency analysis and concept of amplitude-phase	173	
cherecteristics	176	
43. The Mikhaylov stability criterion	182	
hi. Amplitude-phase stability criterion	176 182 186	
45. The Hurvitz stability criterion		
Card 6/7		
card of		

The Power Servomechanisms	582
Ch. IX. Bench Tests of Ser 46. Servenechanism tes	
47. Test procedure	192
48. Processing of osci	
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MARKOVA, Z.S.; KRONGAUZ, Ye.A.; SHMYREVA, T.V.; GANDMAN, M.G.; BUDNITSKAYA, Z.S.

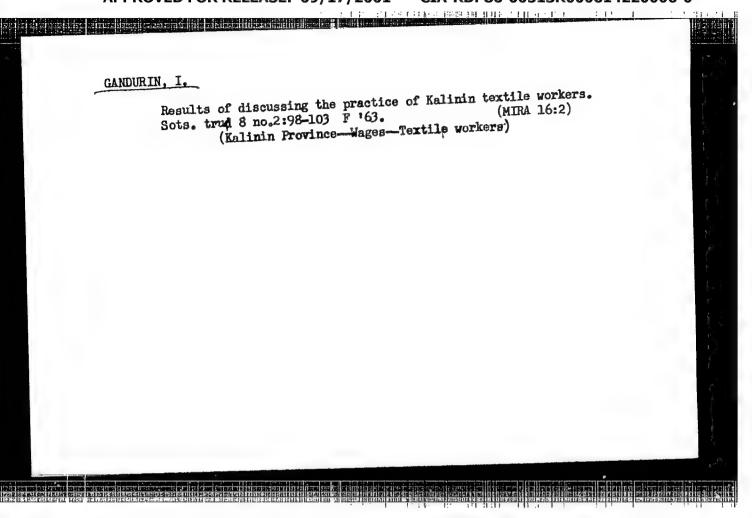
Non-germinating properties of the spores in a Bac. megatherium var. phosphaticum culture. Mikrobiologiia 31 no.1:193-110 (MIRA 15:3)

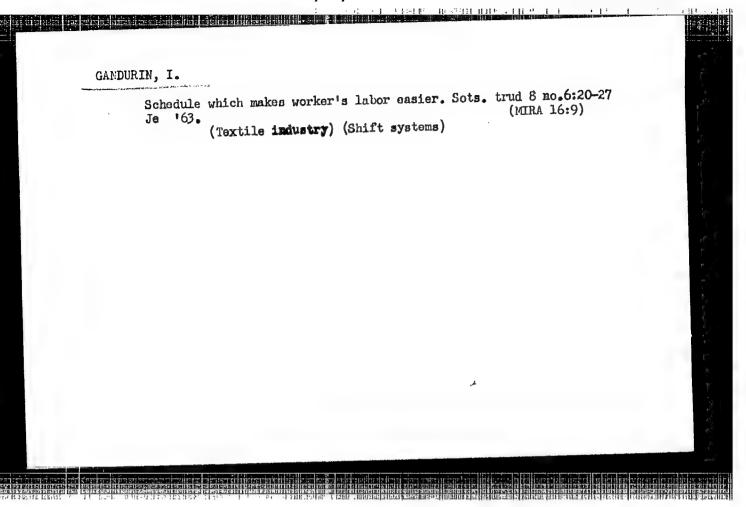
1. Moskovskogo otdeleniye Vsesoyuznogo nauchno-issledovatel'skogo instituta sel'skokhozyaystvennoy mikrobiologii.
(BACILLUS MEGATHERIUM)

SUDAKOVA, L.V.; KRONGAUZ, Ye.A.; GANDMAN, M.C.; BELOVA, V.K.

Study of the effect of various contaminants on the growth of Bac. megaterium, var. ghosphaticum. Prikl. biokhim. i mikrebiol. 1 no. 6:717-721 N-D '65. (MIRA 18:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sel'skokhozywystvennoy mikrobiologii, Moskovskoye otdeleniye. Submitted May 20, 1965.





GANDURIN, L.I., aspirant; SADOV, F.I., prof.

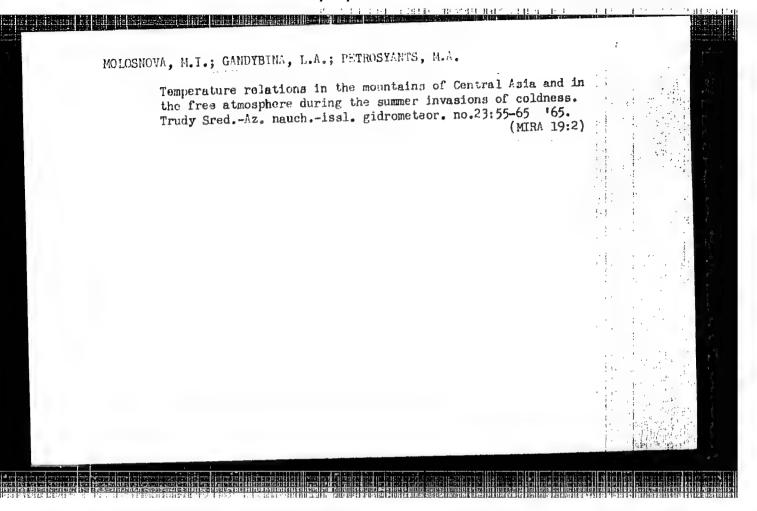
Investigating various reducing agents under the conditions of two-phase printing with vat dyes. Tekst. prom. 23 no.12:
(MIRA 17:1)
55-59 D '63.

1. Kafedra khimicheskoy tekhnologii voloknistykh materialov Moskovskogo tekstil'nogo instituta.

SADOV, F.I., prof.; CANDURIN, L.I., aspirant

Investigating various reducing agents under the conditions of the two-phase metnod of vat dye printing. Tekst.prom. 24 no.1: 72-77 Ja *164.

1. Moskovskiy tekstil'nyy institut.



ACC NR: AP6005371 (N)	SOURCE CODE: UR/0413/66/000/001/0117/0117	
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INVENTOR: Gandyul, V. D.	B	
ORG: None		
TITIE: Separable vacuum-tight	joint. Class 47, No. 177713	1
SOURCE: Isobreteniya, promyal	clessyye obrastsy, tovarnyye snaki, no. 1, 1966, 117	
TOPIC TAGS: vacuum tight, see		
ABSTRACT: An author certification of two members containing a f	te has been issued for a separable vacuum-tight joint lexible soft metal ring seal. To improve the tech-	
members to be joined are cone	-shaped, and one of them has a ring-seal shoulder.	
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GANDZHA I. M.

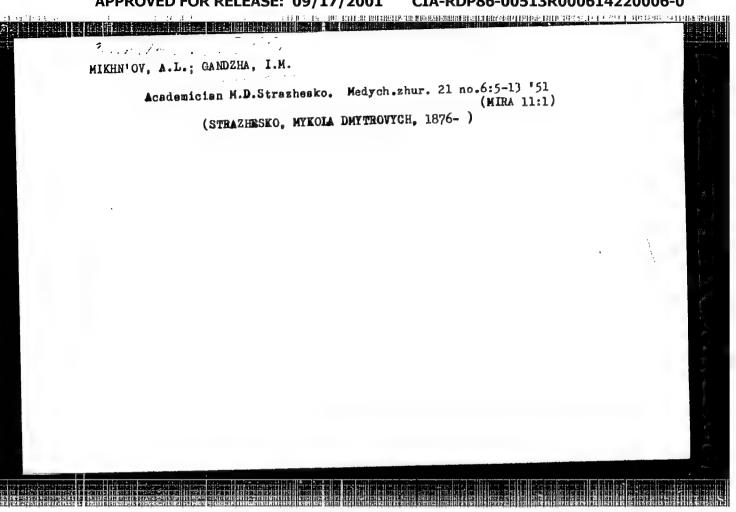
5309. GANDZHA I. M. Concentration of penicillin in the bile after various methods of administration Sovietskaya Meditsina, Moscow 1949, 11 (10-12) Tables 4

A preliminary report giving the results of determinations of the penicillin concentration in the bile after duodenal and intramuscular administration. After duodenal application, the penicillin concentration is higher in the bile than in the blood. If the liver function is normal, duodenal administration gives higher penicillin levels in the bile than intramuscular injection. The highest concentration was detected in the B fraction of bile; the concentration remained constant for 2 to 3 hours, whereas variations in the penicillin contents of C and A fractions were observed, depending on various factors. The functional condition of the liver seems to influence the penicillin level in the C fraction, and the pH causes the variations in the A fraction. The penicillin level of blood is low after duodenal administration and falls rapidly after a short time. The duodenal contents, however, retain a concentration as high as 40 units per ml. for 3 hours at least.

Fuks - Zagreb (II, 6)

SO: Excerpta Medica, Section II Volume III No. 9

Div of Functional Path, Inst of Clincal Med Ukrainian SSR.



GANDZHA, I.M., kandidat meditsinskikh nauk

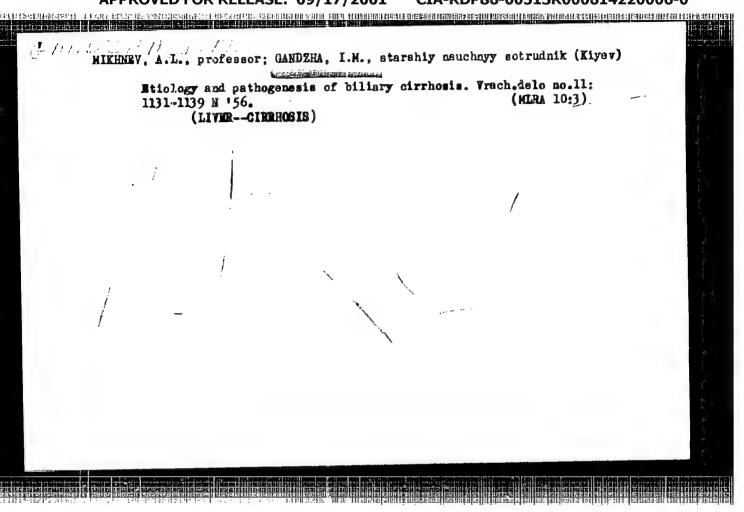
Metabolism disturbances in allergy and histamine administration.

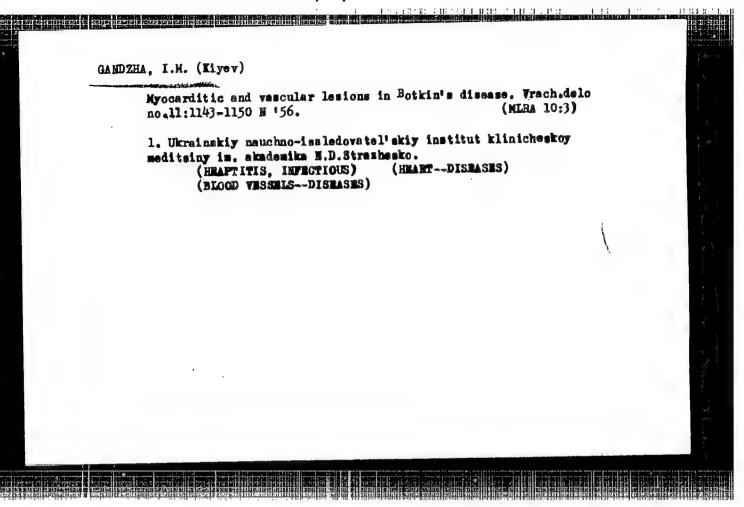
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1. Kafedra terapii II (zaveduyushchiy professor A.L.Mikhnev).

Kiyevskogo instituta usovershenstvovaniya vrachay i otdel YunktsioRiyevskogo instituta usovershenstvovaniya vrachay i otdel Yunktsional'noy petologii Ukrainskogo instituta klinicheskoy meditsiny inemi
akademika N.D.Strahesko.

(METABOLISM, DISORDERS OF) (HISTAMINE) (ALLERGY)





"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000614220006-0 (2012) (22) | 12-2-2 | 12-2-2 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014 | 2014

USSR/Human and Animal Physiology (Normal and Pathological).

Blood Circulation. General.

Abs Jour: Ref Zhur-Biol., No 17, 1958, 79521

Author : Gandzha, I.M.

Inst

: Changes of the Cardio-Vascular System During Illnesses Title

of the Liver and the Digestive Tracts.

Orig Pub: Materialy po obmenu nauchn. inform Ukr. n.-i. in-t

klinich. meditsiny, 1957, vyp. 1, 57-58.

Abstract: No abstract.

: 1/1 Card

USSR/Human and Animal Physiology (Normal and Pathological). Blood Circulation. General.

Abs Jour: Ref Zhur-Diol , No 17, 1958, 79522.

Author : Gandzha, I.M.

Inst

: Change of Several Indicators of Henodynamics in Title

Persons Suffering With Liver Diseases.

Orig Pub: Materialy po obmenu nauchn inform. Ukr n.-i. ni-t

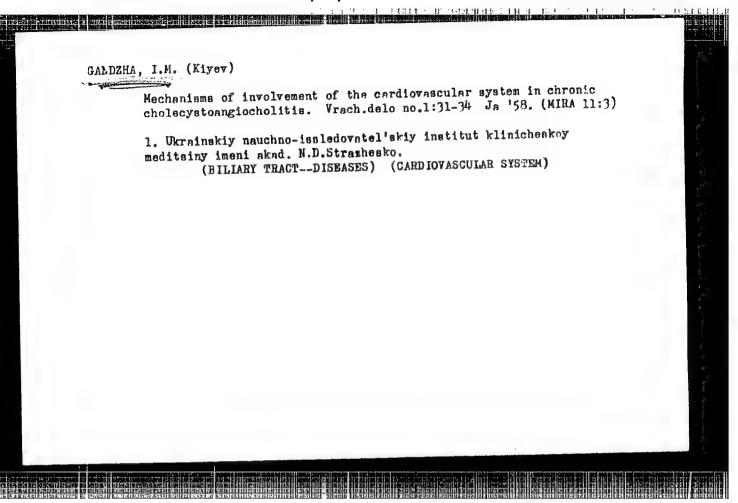
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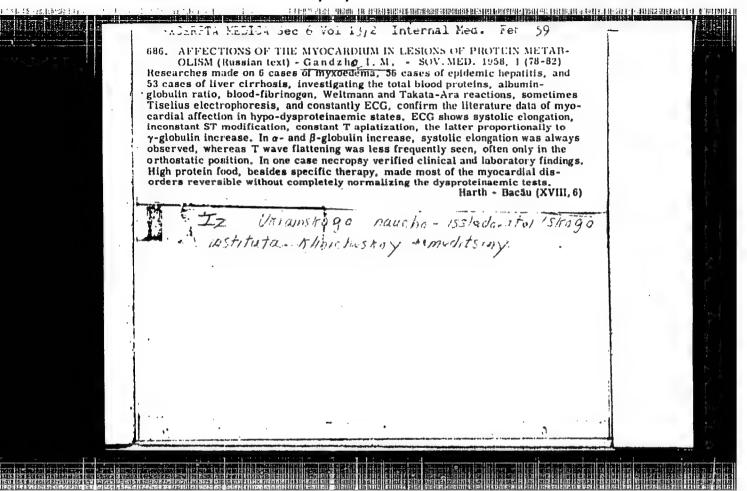
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Changes in blood volume in liver diseases. Vrach.delo supplement
(MRA 11:3)

1. Ukrainskiy institut klinicheskoy meditsiny imeni akad. B.D.
Strashesko.
(HLOOD VOLUME) (LIVER-DISEASES)





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(LIVER.-DISEASES.-DIAGNOSIS)

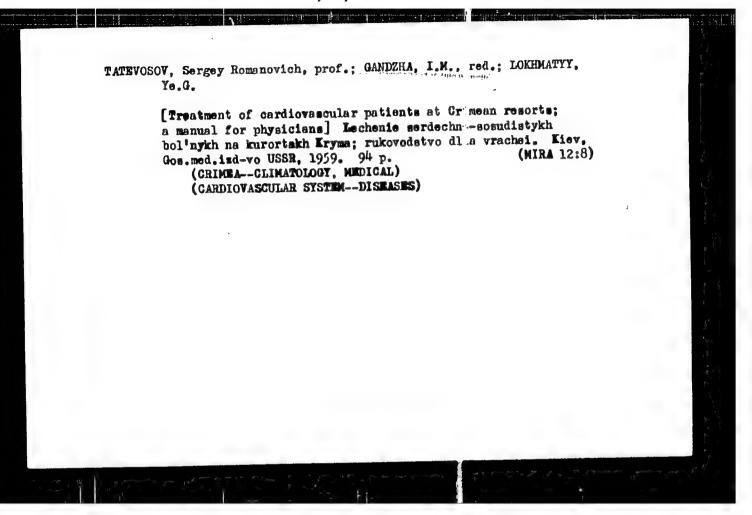
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GANDZHA, I.M., Doc Med Sci -- (diss) "State of the cardio-vascular system in disease of the liver and bile ducts. (Botkin's disease, cirrhosis of the liver, chronic cholecystoangiocholitis)." hiev, 1959, 19 pp (Kiev Order of Labor and Banner Med Inst im Acadamician A.A. Bogomolets) 200 copies (KL, 36-59, 117)

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1.Otdel funktsional'noy patologii (sav. - iots. E.E. Krister) Ukrainskogo nauchno-iseledovatel'skogo institute klinicheskoy meditsiny imeni akademika N.D. Strashesko.

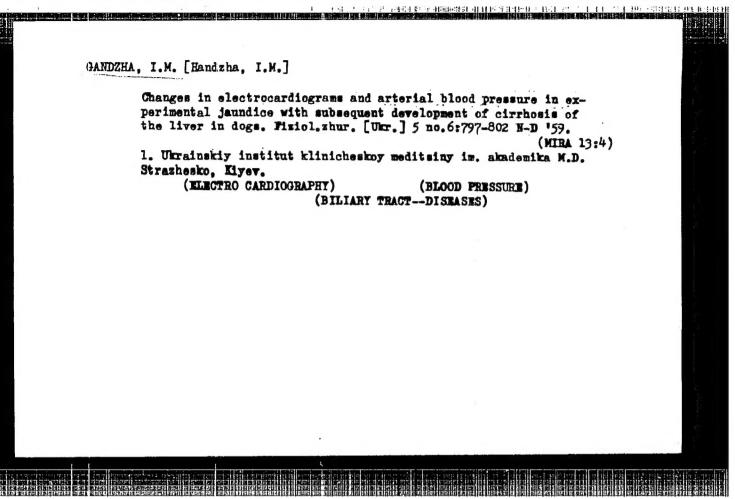
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(CARDIOVASCULAR SYSTEM.—LISEASES)

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(UKRAINE--MEDICAL LAWS AND LECISLATION)



CANDZHA, Igor' Mikhaylovich; CHEBOTANEV, D.F., red.; POTOTSKAYA, L.A., tokhn. red.

[The cardiovascular system in diseases of the liver and biliary tract] Serdechno-sosudistaia sistema pri bolezniakh pecheni i zhelchnykh putei. Kiev, Gosmedizdat, USSR, 1961. 154 p.

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(BILIARY TRACT—DISEASES)

